



# Accelerated Site Technology Deployment Integrated Decontamination and Decommissioning

# Team Approach

- INEEL
- FEMP
- ANL-E
  
- EM40 and EM50

# Objective

- Use innovative, proven technologies in D&D operations to reduce:
  - Cost
  - Radiation exposure
  - Waste volume
  - Schedule

# Proven Technologies

- Large Scale Technology Demonstration
- Private Industry

<u>Technology</u>	<u>Site</u>	<u>Supplier</u>
BROKK Demolition Robot	INEEL	BROKK Holmhed
Pipe Explorer	INEEL	Science and Engineering Associates
GammaCam	INEEL	AIL Systems, Inc.
DDROPS	INEEL	INEEL
Oxy-Gasoline Torch	INEEL, FEMP, ANL-E	Petrogen, Inc.
Personal Ice Cooling System	INEEL, FEMP, ANL-E	Delta Temax, Inc.
Hand Held Shear	FEMP	Lucas Rescue Tools, Inc.
Tire-Mounted Shear/Crusher	FEMP	Thomas
Track-Mounted Shear/Grapple	FEMP	John Deere, Pemberton Mfg., and Tiger Mfg.

# INEEL Facilities

- Liquid Waste Treatment Facility (TAN-616)
- Sewage Treatment Plant (CFA-691)
- Test Reactor Area Filter Pits (TRA-755)

# FEMP Facilities

- Propane Storage Shelter (38A)
- Cylinder Filling Station (38B)
- Railroad Engine House (24B)
- Harshaw Digestion Fume Recovery (3F)
- Refrigeration Building (3G)

# Accomplishments

## INEEL

- 3 technologies procured
- 1 technology deployed in FY98
- 5 technologies will be deployed in FY99
- 2 facilities will be characterized and  
1 facility will be decommissioned in  
FY98 and FY99



# Accomplishments

## FEMP

- 2 technologies procured
- 4 technologies deployed in FY98
- 5 facilities will be decommissioned in FY98
- Technologies will be used on numerous facilities in FY99
- 1 technology already deployed on an EM-50 project

# Pipe Explorer

- Science and Engineering Associates, Inc.
- Characterize piping in place for visual and radiation data
  - 400 ft. long
  - 2 in. to 18 in. diameter
  - Sensor protected by membrane
- Benefits
  - Reduce cost
  - Reduce radiation exposure

# BROKK 250 BM

## Demolition Robot

- BROKK Holmhed Systems AB
- Tethered or radio remote controlled demolition robot with:
  - Scabbler
  - Hydraulic shear
  - Pentek scabbler
  - Strippable coating sprayer
  - Hammer
  - Grapple

# BROKK 250 BM Demolition Robot (continued)

## ■ Benefits

- Reduce radiation exposure
- Reduce cost
- Accelerate schedule
- Increase safety

# Decontamination, Decommissioning, and Remediation Optimization Planning System (DDROPS)

## ■ INEEL

## ■ Optimize cutting, disassembly, and filling waste boxes

- 3-D model
- Cutting locations
- Waste box filling
  - Volume
  - Radiation levels
- Inventory of waste box contents

# Decontamination, Decommissioning, and Remediation Optimization Planning System (DDROPS) (continued)

## ■ Benefits

- Reduce cost
- Reduce radiation exposure
- Reduce waste volume
- Accelerate schedule

# GammaCam

- AIL Systems, Inc.
- Remote radiation survey
- Benefits
  - Reduce cost
  - Reduce radiation exposure
  - Accelerate schedule

# Oxy-Gasoline Torch

- Petrogen, Inc.
- Cut carbon steel
  - Less fuel
  - Cuts 65% faster
  - Safer than oxy-acetylene torch



# Oxy-Gasoline Torch (continued)

## ■ Benefits

- Reduce cost
- Reduce radiation exposure
- Reduce waste volume
- Accelerate schedule
- Increase safety

# Personal Ice Cooling System

- Delta Temax, Inc.
- Keeps radiation workers cool
- Benefits
  - Reduce cost
    - For 70-80°F, saves 39%
    - For >85°F, saves 66%
    - For >85°F, payback time = 9 hours
  - Reduce radiation exposure
  - Accelerate schedule
  - Increase productivity
  - Increase safety

# Hand-Held Shear

- Lucas Rescue Tools
- Self-powered shear
- Benefits
  - Reduce cost
  - Reduce radiation exposure
  - Reduce lead exposure
  - Accelerate schedule
    - Cuts 20% faster

# Tire-Mounted Shear/Grapple (EM-40 provided)

- Thomas
- Demolition tool
- Benefits
  - Reduce lead exposure
  - Accelerate schedule
  - Increase safety
  - Improve productivity by automating process

# Track-Mounted Shear/Crusher

- John Deere, Pemberton, and Tiger Mfg.
- Demolition tool
- Benefits
  - Improve worker safety
  - Reduce lead exposure
  - Improve productivity by automating process